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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,259	04/18/2006	Junko Kakegawa	P29770	8831

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EXAMINER	
LACLAIR, DARCY D	

ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
12/31/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/576,259	KAKEGAWA, JUNKO	
	Examiner	Art Unit	
	Darcy D. LaClair	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 October 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,9-15,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3, 9-15, 19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **10/8/2009** has been entered.

All outstanding rejections, except for those maintained below are withdrawn in light of the amendment filed on **10/8/2009**.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

2. **Claims 1, 3, 9-12, 14-15 and 19-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Maekawa (WO2002/090435)** in view of **Nakano et al. (US 5,302,645)** and **Kudou (US 2002/0123570)**

It is noted that the international Patent Application WO publication is being utilized for date purposes. However, since **WO 2002/090435** in Japanese, in the discussion below, the US equivalent for **WO 2002/090435**, namely **US 2004/0147635**, respectively, is referred to in the body of the rejection below. All column and line citations are to the US equivalent.

With regard to Claim 1, Maekawa teaches a molding composition used to obtain shape of the molded product by varying a shape of the mold (see par [0090]) comprising polytrimethylene terephthalate and an inorganic filler, where the inorganic filler falls within the range from 5 to 70% by weight based on a total weight of the resin composition. (See abstract) This is from approximately 5 to 233 parts of inorganic filler. The inorganic filler is wollastonite, (see par [0036]) and Maekawa teaches that the inorganic filler is treated with a surface treatment agent (see par [0051]) such as aminosilanes. (See par [0054]) Maekawa specifically exemplifies gamma-aminopropyltriethoxysilane (see par [0104]) which is an aminosilane coupling agent. Maekawa further indicates that a thermoplastic resin such as polycarbonate may be incorporated in the resin. (See par [0088]) Maekawa teaches a film forming agent for use as a surface treatment for the inorganic filler, (see par [0051]) and cites epoxy polymers as particularly preferred for economical and fatigue resistance reasons. (see par [0057]) Maekawa does not specifically discuss the content of the epoxy resin or polycarbonate resin or the particular use of the resin product.

Nakano teaches a polyethylene terephthalate composition, which is a similar alkylene terephthalate resin. For this composition, Nakano teaches 1 to 25 parts by weight of an epoxy resin and 5 to 50 parts of a thermoplastic resin. (See abstract) preferably polycarbonate. (See col 2 line 58 - col 3 line 2) The combination of these components within specific ranges provides an extremely stable moldability. (See col 1 line 49-55) In the absence of a teaching from Maekawa with regard to the content of epoxy and polycarbonate, it would be obvious to one of ordinary skill in the art to

consider amounts of these resins which were appropriate for use in a chemically similar terephthalate resin. Additionally, Nakano discloses guidance in formulating the resin. Specifically too little epoxy will have no effect, and too much epoxy will lead to molding flashes and unstable fluidity, and too little thermoplastic will have little effect and too much thermoplastic will lead to a reduction in mechanical strength. (see col 3 line 50-68) In that the content of epoxy, polycarbonate and filler constitutes results effective variables, it would be obvious to one of ordinary skill in the art to adjust the content of each of these components in order to achieve an amount most appropriate for the particular thermoplastic resin taught by Maekawa, depending on the final molded product. See MPEP § 2144.05 (B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Maekawa teaches that the composition has good appearance, superior mechanical properties, and good fatigue resistance. (See par [0121]) Kudou teaches that a resin composition having good mechanical properties such as impact resistance and heat stability, (see par [0088]) in addition to good surface appearance obtained by the use of inorganic fillers such as wollastonite (see par [0062], [0063]) is suitable for use in a multitude of applications such as sinks, drains, an housing equipment (see par [0082],[0087]) It would be obvious to use the composition based on the combination of Maekawa and Nakeno to generate the molded articles of Kudou such as sinks and other housing equipment, which is consistent with applicant's wash bowl, hand-wash bowl, washroom product, kitchen product, or sink product.

With regard to Claim 3, Maekawa teaches an amount of the grafting polytrimethylene terephthalate layer provided on the surface of the inorganic filler is from 0.1 to 2 parts by weight based on 100 parts by weight of the inorganic filler. (See par [0049]) As Maekawa teaches wollastonite as the inorganic filler, and surface treating with aminosilane, it would be obvious to use this grafting amount on the aminosilane treated wollastonite.

With regard to Claim 9, Maekawa teaches that the inorganic filler may be used singly or in a combination of two or more thereof, and that the combination of glass fiber and an inorganic fiber other than glass fiber is preferred because mechanical strength, dimensional accuracy, and electrical properties are provided at the same time. (see par [0041]) Maekawa further exemplifies the use of glass fiber and wollastonite together, treated with aminopropyltriethoxysilane, in a ratio of 30/20, respectively. (See par [0111]) Maekawa does not disclose an example where the ratio for the components is higher for the wollastonite. Kudou teaches that particle sizes and amounts depend on the uses and objects of the individual fillers. Inorganic fillers such as wollastonite give a good surface appearance and slidability to molded articles. (See par [0062], [0063]) Glass fibers are particularly useful to give rigidity to molded articles. (See par [0064],[0065]) Therefore, the content of each filler is a result effective variable. In the examples of Kudou, wollastonite is used in preference to glass fibers, which are not exemplified. (See par [0123]-[0125]) Further, it would be obvious to adjust the content of each type of filler to obtain a molded product with good mechanical properties as well as good surface appearance. See MPEP § 2144.05 (B). Case law holds that

"discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With regard to Claim 10, Maekawa teaches an amount of the grafting polytrimethylene terephthalate layer provided on the surface of the inorganic filler is from 0.1 to 2 parts by weight based on 100 parts by weight of the inorganic filler. (See par [0049]) Maekawa discloses that the inorganic filler can comprise both crystalline fillers as well as glass fibers. (See par [0040])

With regard to Claim 11, Maekawa teaches that the intrinsic viscosity for the polytrimethylene terephthalate resin is preferably not less than 0.60, and most preferably not less than 0.70. (See par [0060])

With regard to Claim 12, Maekawa exemplifies a novolak type epoxy emulsion. (See par [0106])

With regard to Claim 14, Maekawa exemplifies a bisphenol A type epoxy (see par [0104]). Nakano also teaches a bisphenol A type epoxy resin. (See col 2 line 50)

With regard to Claim 15, Nakano teaches the epoxy equivalent for the bisphenol A resin is preferably 1000 or less. (See col 2 line 53) Therefore it would be obvious to use a bisphenol A epoxy falling within this range for the epoxy of Maekawa. This overlaps with applicant's claimed range.

With regard to Claim 19, Maekawa teaches that it is possible to obtain any shape of the molded product by varying the shape of the mold. (See par [0090]) Kudou teaches that a resin composition having good mechanical properties such as impact

resistance and heat stability, (see par [0088]) in addition to good surface appearance obtained by the use of inorganic fillers such as wollastonite (see par [0062], [0063]) is suitable for use in a multitude of applications such as sinks, (wash bowl, hand-wash bowl) drains, and housing equipment (see par [0082],[0087])

With regard to Claim 20, Maekawa discloses that PTT may be obtained according to methods described in JP-A-51-140992, JP-A-5-262862, and JP-A-8-311177. (See par [0027]) Applicant refers to the same set of documents for instruction in generating the PTT. (See applicant's specification p. 12 par [0011]) The filler is treated with a portion of the resin. (See the discussion with regard to claim 3) With the combination of Maekawa and Nakano, the epoxy and polycarbonate would be present in the composition, in ratios determined to be most appropriate for PTT specifically. (See the discussion with regard to claim 1) The hardness of the composition would be conferred by the PTT resin, the additional resins (epoxy and polycarbonate) used, and their content, and the type and mixing capabilities of the fillers. It is the examiner's position that the composition of Maekawa in view of Nakano and Kudou is substantially similar to applicant's claimed composition, and would inherently have substantially similar physical properties, including the hardness.

3. **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Maekawa** in view of **Nakano et al., Kudou et al. and Largman et al (US 4,403,052),** with ***evidence*** provided by **MatWeb (ENC 1299) (http://www.matweb.com/)**.

The discussion of **Maekawa, Nakano and Kudou**, above in **paragraph 2**, is incorporated here by reference.

With regard to Claim 12, Maekawa teaches film forming agents including epoxy polymers for carrying out the surface treatment of the filler, (see par [0051], [0057]) but does not disclose their use not grafted on the filler. Nakano discloses the use of epoxy, with preferred polyepoxides being epoxy cresol novolac resins (see col 5 line 18-19) in the resin composition from 1-25 parts by weight for the purpose of improving moldability. (See col 1 line 49-55, 60, see discussion of claim 4, above in paragraph 3) Largman teaches a polyester composition which comprises a polyalkylene terephthalate, which is the same class of resin used by Maekawa. (see abstract) Largman provides additional motivation for including an epoxy compound, specifically Largman teaches that the polyester composition can include a polyepoxide up to 3% by weight of the polyester, which functions as a chain extender and helps compensate for broken polyester chains. (See col 5 line 10-15, 21) It would be obvious to include an epoxy in the composition based on the improved moldability suggested by Nakano and for the chain extending properties suggested by Largman. In both cases, the content suggested is within applicant's claimed range.

With regard to Claim 13, Largman teaches that the preferred epoxy cresol novolac resins are available under the trade designation ECN 1245, 1273, and 1299. (see col 5 line 19-20) ECN 1299 is a polyfunctional epoxy resin having about 3 epoxy groups per molecule. (See col 6 line 32-34) Matweb provides material notes for ECN 1273 and ECN 1299: The weight per epoxy, or grams/equivalent, for 1245, is 217 to

233, and 217 to 244, respectively, which is consistent with applicant's requirement for the novolac resin.

Response to Arguments

4. Applicant's arguments filed **10/8/2009** have been fully considered. Specifically, applicant argues

(A) Claim 4 has been cancelled in an effort to advance prosecution.

(B) The claims have been amended to replace the crystalline inorganic filler with wollastonite treated with amino-silane, which provides unexpectedly good results when used in combination with other features of the presently claimed invention; note the comparison of Example 1 and Example 5. Both examples had good properties, but the weight change at immersion in an alkaline washing solution of Example 1 was unexpectedly larger than that of Example 5; Chemical resistance is extremely important in the instant invention because it is in contact with water as well as with alkaline cleaning solutions; In order to show two commensurate examples including the A2 component (polycarbonate resin), a declaration is submitted showing Example 5 having the aminosilane treated wollastonite replaced with epoxysilane. This shows a greater weight change for the amino-silane treated example compared to the epoxysilane treated composition.

Furthermore, Maekawa does not teach wollastonite treated with aminosilane; wollastonite is taught, but treating with aminosilane is not taught; based on the differences shown in the Declaration, there are unexpectedly good results from the amino-silane and not all wollastonites perform the same; furthermore, nothing in

Maekawa suggests chemical modification of the wollastonite, let alone chemical modification with amino-silane. Neither Nakano, Kudou, nor Largman remedy the deficiencies of Maekawa, nor do any of these references separately teach or suggest the instantly claimed invention.

5. **With respect to argument (A),** applicant's arguments have been considered and the objection to Claim 4 been withdrawn ***in light of applicant's amendment*** cancelling Claim 4 and rendering the objection moot.

With respect to argument (B), applicant's arguments have been considered but are ***not*** **persuasive**. Support for the amendment on page 20 line 11 and page 23 line 21 and 27 is acknowledged. New grounds of rejection based on Maekawa are set forth above. Maekawa does teach wollastonite (see par [0036]) and the combination of a glass fiber and an inorganic fiber other than the glass fiber (see par [0040]) which makes wollastonite obvious to one of ordinary skill in the art. Furthermore, Maekawa teaches surface treatment of the inorganic filler with a coupling agent (see par [0051]) which is preferably an aminosilane. (See par [0054]) and in fact specifically exemplifies a blend of glass fiber and wollastonite where gamma-aminopropyltriethoxysilane is used as a coupling agent. (See par [0104], [0111]) Accordingly, contrary to applicant's assertion, Maekawa does teach wollastonite treated with aminosilane. With regard to applicant's assertion of unexpected results, this is addressed below in the discussion of the Kakegawa Declaration.

The Declaration under 37 CFR 1.132 filed **9/22/2009** is insufficient to overcome the rejection of **Claims 1, 3, 9-12, 14-15 and 19-20** based on **Maekawa**, **Nakano** and **Kudou** and **Claims 12 and 13** based on **Maekawa**, **Nakano**, **Kudou** and **Largman** as set forth because:

Specifically, is noted that Maekawa does disclose and exemplify the use of an aminosilane on wollastonite, in a composition having a polytrimethylene terephthalate and an epoxy resin, and teaches the use of a thermoplastic resin such as polycarbonate, thus providing strong motivation to use an amino-silane to treat wollastonite in a polytrimethylene terephthalate based composition sufficient to outweigh any alleged unexpected results. Additionally, applicants have provided a single example at 85 parts by weight of PTT resin, 10 parts by weight of PC resin, and 5 parts by weight of epoxy resin. Additionally, there are 112.5 parts of wollastonite to 100 parts by weight of resin. This is a very narrow embodiment falling within the more broadly claimed composition, and therefore is not commensurate in scope with the claimed invention, and does not provide adequate data to demonstrate that the alleged unexpected results would be seen across the entire compositional range claimed by applicant.

Further, the declaration does not meet the burden of establishing that the results are unexpected. Specifically, applicant has provided data showing two compositions, in which the silane is either an epoxysilane or an aminosilane, and demonstrating a difference in the weight change, but not in any other property. The weight change in the case of the aminosilane is -0.01%, and the weight change in the case of the

epoxysilane is -0.04%. First, the percent weight change is only a very small percentage in each case, and it is not clear from the disclosure or the Declaration that the difference between -0.01% and -0.04% would be recognized by one of ordinary skill in the art as a meaningful difference. Furthermore, applicant has provided no statistical analysis to demonstrate that this is in fact a statistically relevant difference. As the difference is so small and of similar magnitude, it is essential that statistical data is provided in order for the Examiner to ascertain the meaningfulness of this data. It is also not clear what specimen size was used to obtain the data shown. The measurement error on a very small sample would be significant with a percent weight change of the magnitude indicated, which would render the results shown less accurate. Accordingly it is deemed that applicant has not established the required burden for establishing that the results using the aminosilane in combination with wollastonite and the resin components of the claims is unexpected.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darcy D. LaClair whose telephone number is (571)270-5462. The examiner can normally be reached on Monday-Friday 8:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Milton I. Cano/
Supervisory Patent Examiner, Art Unit 1796

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Examiner
Art Unit 1796

/DDL/